

# **42/50G2 PDP modules vertical line issue repair method**

## **Contents**

- I. Tv models using G2 panels.**
- II. Vertical noise type.**
  - A1. Vertical noise failure cause.**
  - A3. Measuring diode value.**

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# I. TV models using G2 PDP panels.

There are reported two kind of vertical noise in the field related to PDP panels 42G2 and 50G2 series caused by control board assembly.

1.- Vertical line with same interval.

2.- Vertical line without same interval.

This bulletin shows analysis and repair method for both kind of issues.

## TV MODELS USING 42G2 SERIES PANELS.

No	Model Name	No	Model Name
1	42PQ20-UA.ACCLLHR	27	42PQ20-UA.ACCALHR
2	42PQ20-UA.ACCLLJR	28	42PQ20-UA.AUSALHR
3	42PQ20-UA.AUSLLHR	29	42PQ20-UA.AWMALHR
4	42PQ20-UA.AUSLLJR	30	42PQ30-UA.ACCALHR
5	42PQ20-UA.AWMLLHR	31	42PQ30-UA.AUSALHR
6	42PQ20-UA.AWMLLJR	32	42PQ30-UD.AWMALHR
7	42PQ30-UA.ACCLLHR	33	42PQ30C-UA.AUSALHR
8	42PQ30-UA.ACCLLJR	34	42PQ30R-MA.AWCALJR
9	42PQ30-UA.AUSLLHR	35	42PQ30R-MA.AWFALJR
10	42PQ30-UA.AUSLLJR	36	42PQ30R-MA.AWHALJR
11	42PQ30-UD.AWMLLHR	37	42PQ30R-MA.AWPALJR
12	42PQ30-UD.AWMLLJR	38	42PQ60-UA.ACCALHR
13	42PQ30C-UA.AUSLLHR	39	42PQ60-UA.AWMALHR
14	42PQ30R-MA.AWCLLJR	40	42PQ60R-MA.AWCALJR
15	42PQ30R-MA.AWFLLJR	41	42PQ60R-MA.AWFALJR
16	42PQ30R-MA.AWHLLJR	42	42PQ60R-MA.AWHALJR
17	42PQ30R-MA.AWPLLJR	43	42PQ60R-MA.AWPALJR
18	42PQ31-UD.AWMLLHR		
19	42PQ60-UA.ACCLLHR		
20	42PQ60-UA.ACCLLJR		
21	42PQ60-UA.AWMLLHR		
22	42PQ60-UA.AWMLLJR		
23	42PQ60R-MA.AWCLLJR		
24	42PQ60R-MA.AWFLLJR		
25	42PQ60R-MA.AWHLLJR		
26	42PQ60R-MA.AWPLLJR		

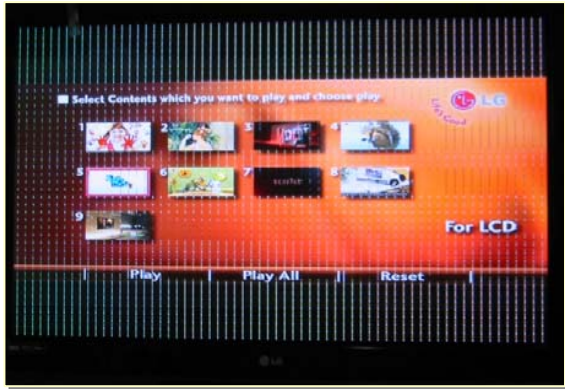
## TV MODELS USING 50G2 SERIES PANELS.

No	Model Name	No	Model Name
1	50PQ20-UA.ACCLLHR	27	50PQ20-UA.ACCALHR
2	50PQ20-UA.ACCLLJR	28	50PQ20-UA.AUSALHR
3	50PQ20-UA.AUSLLHR	29	50PQ20-UA.AWMALHR
4	50PQ20-UA.AUSLLJR	30	50PQ30-UA.ACCALHR
5	50PQ20-UA.AWMLLHR	31	50PQ30-UA.AUSALHR
6	50PQ20-UA.AWMLLJR	32	50PQ30-UD.AWMALHR
7	50PQ30-UA.ACCLLHR	33	50PQ30C-UA.AUSALHR
8	50PQ30-UA.ACCLLJR	34	50PQ30R-MA.AWCALJR
9	50PQ30-UA.AUSLLHR	35	50PQ30R-MA.AWFALJR
10	50PQ30-UA.AUSLLJR	36	50PQ30R-MA.AWHALJR
11	50PQ30-UD.AWMLLHR	37	50PQ30R-MA.AWPALJR
12	50PQ30-UD.AWMLLJR	38	50PQ60-UA.ACCALHR
13	50PQ30C-UA.AUSLLHR	39	50PQ60-UA.AWMALHR
14	50PQ30R-MA.AWCLLJR	40	50PQ60R-MA.AWCALJR
15	50PQ30R-MA.AWFLLJR	41	50PQ60R-MA.AWFALJR
16	50PQ30R-MA.AWHLLJR	42	50PQ60R-MA.AWHALJR
17	50PQ30R-MA.AWPLLJR	43	50PQ60R-MA.AWPALJR
18	50PQ31-UD.AWMLLHR		
19	50PQ60-UA.ACCLLHR		
20	50PQ60-UA.ACCLLJR		
21	50PQ60-UA.AWMLLHR		
22	50PQ60-UA.AWMLLJR		
23	50PQ60R-MA.AWCLLJR		
24	50PQ60R-MA.AWFLLJR		
25	50PQ60R-MA.AWHLLJR		
26	50PQ60R-MA.AWPLLJR		

## II. PDP module (G2 models) Vertical Noise type

✓ There are two types of Picture (Vertical) noise upon DDR Memory for 42/50G2 PDP module.

1. Vertical line with same interval (16pixels)

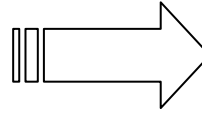


2. Vertical line without same interval (8pixels, 16pixels or 32pixels)



## II. PDP module (G2 models) Vertical Noise type

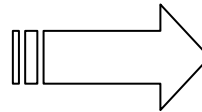
### 1. Vertical line with same interval (16pixels)



#### CHECK PROCEDURE:

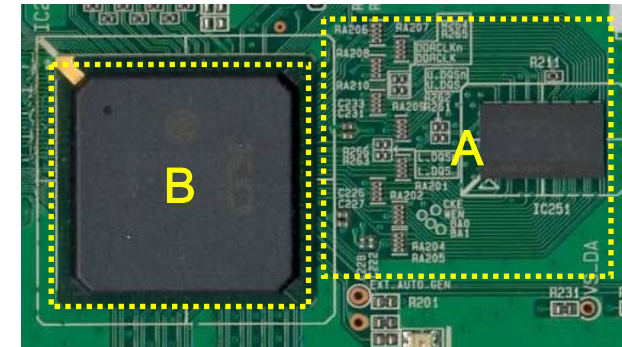
This problem is mostly related to failure in DQ signal paths from DDR2 memory IC251 to BGA IC201.

A. Check the components solder quality, foils and via holes integrity.

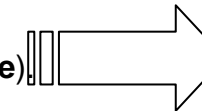


B. Press BGA IC firmly to check for bad solder.

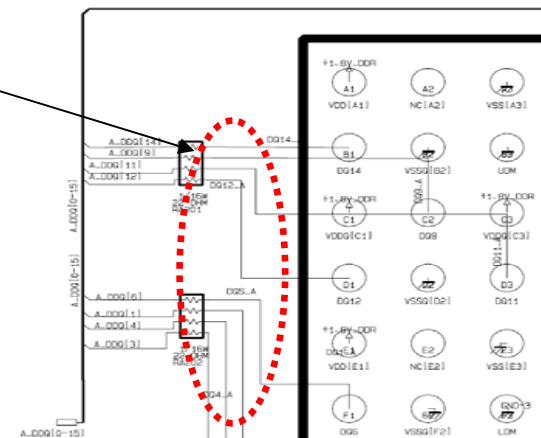
Refer to A1 figure in page 5.



C. Check diode value of the 16 DQ lines using multi-meter, GND(+)-to-DQ line(-) (refer to A3 picture in the last slide)  
Normal diode voltage drop is (0.4 to 0.5 Vdc).



#### Check points



If everything is OK and failure persist, change the control board assy.

## II. PDP module (G2 models) Vertical Noise type

### 2. Vertical line without same interval (8pixels, 16pixels or 32pixels).



#### CHECK PROCEDURE:

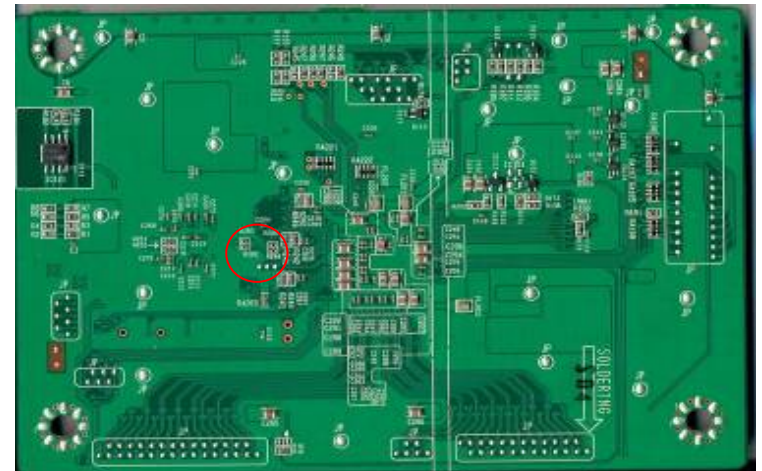
- A. Check the control board DQS Resistors coming out from DDR memory to BGA IC (backside R282 , R283 , R284 , R285)

- DQS (local clock function) resistor value must be  $470\Omega$ .

If  $1K\Omega$  resistor value is found, change to  $470\Omega$  ( $1k\Omega \rightarrow 470\Omega$ ).

-  $1k\Omega$  has some potential probability to cause vertical lane when repeatedly connected and disconnect of LVDS cable.

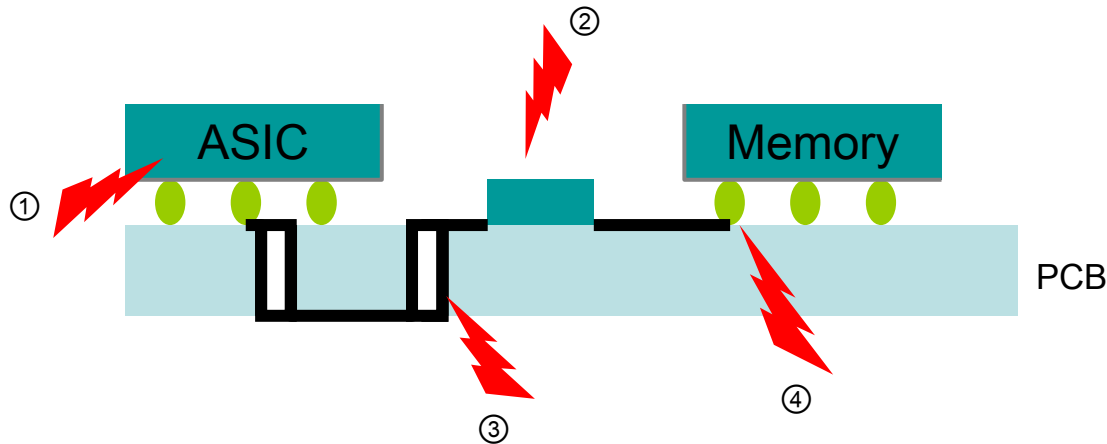
- B. Check diode value of the 4 DQS lines.  
(refer to A3 picture in the last slide).  
Normal diode voltage drop is (0.4 to 0.5 Vdc).



If everything is OK and failure persist, change the control board assy.

# A1. Vertical Noise Failure cause

## Possible Failure Cause of Picture (Vertical) Noise upon DDR Memory



### ✕ Failure cause:

- ① Pin fail : Diode check with multi-meter.
- ② Resistor Crack and soldering problem : visual inspection
- ③ Via hole crack : Diode check, resistor check visually and using multi-meter.
- ④ Ball crack and soldering problem in BGA IC's: Press devices toward PCB

### A3. Measuring Diode value of DQ and DQS

### ✓ Diode check using Multi-meter

